1980 No. 86

# BUILDING REGULATIONS

## Building (Amendment No. 2) Regulations (Northern Ireland) 1980

*Made* . . . . . *4th March 1980*

*Coming into operation* . . . *1st July 1980*

The Department(a) of Finance, in exercise of its powers under Articles 3(1)(b) and 5(1) of the Building Regulations (Northern Ireland) Order 1972 (c) and of every other power enabling it in that behalf, after consultation with the Building Regulations Advisory Committee and such other bodies as appear to it to be representative of the interests concerned, hereby makes the following regulations:—

*Title and commencement*

**1.** These regulations may be cited as the Building (Amendment No. 2) Regulations (Northern Ireland) 1980 and shall come into operation on 1st July 1980.

*Interpretation*

**2.** In these regulations "the principal regulations" means the Building Regulations (Northern Ireland) 1977(d) and any reference to a Part, regulation or schedule shall be construed as a reference to a Part or regulation of or schedule to the principal regulations.

*Transitional provisions*

**3.** These regulations shall not apply to any work which was—

(*a*) completed before the date of the coming into operation of these regulations; or

(*b*) completed after that date in accordance with plans deposited with the district council before that date, with or without any departure or deviation from those plans;

and for the purpose of this regulation "work" means the erection of a building, the alteration or extension of a building, the execution of works, the installation of a fitting or the making of a material change of use.

*Amendments of the principal regulations*

**4.**—(1) In regulation A7 (Application to alterations and extensions) for "regulation A5" there shall be substituted "regulations A5 and FF1 (2) and (3)".

(2) In paragraph (1) of regulation A9 (Application to material change of use) in the list of provisions applicable under Case D "Part F (Thermal insulation)" shall be omitted.

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(a) Formerly Ministry: *see* 1973 c. 36 s. 40 and Sch. 5 para. 8(1)
(b) Read in conjunction with the Schedule to S.I. 1978/1038 (N.I. 8) (which replaced Schedule 1 to S.I. 1972/1996 (N.I. 19)). The relevant enabling provisions of this Order were brought into operation on 1st November 1979 by S.R. 1979 No. 327 (C.15)
(c) S.I. 1972/1996 (N.I. 19). Amended by S.I. 1978/1038 (N.I. 8)
(d) S.R. 1977 No. 149 (I, p. 496) as amended by S.R. 1979 No. 79 (I, p. 262)

(3) In the list of regulations set out in paragraph (1) of regulation A14 (Exercise of power of dispensation or relaxation)—

(*a*) for "Part F (Thermal insulation)" there shall be substituted "Part F (Thermal insulation of dwellings)"; and

(*b*) after Part F there shall be inserted an item "Part FF (Conservation of fuel and power in buildings other than dwellings)".

(4) In the heading to Part F for "Thermal Insulation" there shall be substituted "Thermal Insulation of Dwellings".

(5) After Part F there shall be inserted the Part set out in Schedule 1 to these regulations.

(6) In Rule E of Schedule 2 (Giving of Notices and Deposit of Plans) after item 6 there shall be inserted:—

"6A. Calculations for the purposes of regulation F3(1), F3(2), FF3 or FF4 other than calculations to determine the U value of any part of a wall, floor or roof which is constructed in accordance with the provisions of regulation F4(1) or FF4(*b*).".

(7) In section (A) of Part VI of Schedule 6 (Notional Periods of Fire Resistance) item 1 shall be deleted.

(8) In the footnotes to Parts I and IV(B) of Schedule 8 (Notional Designation of Roof Coverings) for "BS747 : Part 2 : 1970" there shall be substituted "BS747 : 1977".

(9) In Schedule 9 for the heading "Thermal Insulation" there shall be substituted "Thermal Insulation of Dwellings".

(10) After Schedule 9 there shall be inserted the schedule set out in Schedule 2 to these regulations.

Sealed with the Official Seal of the Department of Finance for Northern Ireland on 4th March 1980.

(L.S.) *F. R. Rodgers*
Assistant Secretary

SCHEDULE 1 Regulation 4(5)

**Part to be inserted after Part F (Thermal insulation of dwellings) of the principal regulations**

PART FF

**Conservation of Fuel and Power in Buildings Other Than Dwellings**

*Application of Part FF*

FF1.—(1) Subject to paragraphs (2) and (3), this Part shall apply to any building, or part of a building, falling wholly within purpose group II, III, IV, V, VI, VII or VIII other than—

(*a*) any building, or part, of purpose group III to which Part F applies;

(*b*) any building, or part, which has a total floor area not exceeding 30 $m^2$;

(*c*) any building, or part, of purpose group II, III, IV, V or VII and any building, or part, of purpose group VIII which is not intended to be used for storage if, in each case, the proposed use is such that the design output rating of the space heating installation therein will not need to exceed 25w per square metre of floor area in order to maintain temperature conditions normal for that use; and

(*d*) any building, or part, of purpose group VI and any building, or part, of purpose group VIII which is intended to be used for storage if, in each case, the proposed use is such that the design output rating of the space heating installation therein will not need to exceed 50w per square metre of floor area in order to maintain temperature conditions normal for that use.

(2) In relation to a structural alteration of the enclosing structure of an existing building or part of a building—

(*a*) regulation FF3 shall not apply if the building or part was erected before the date of coming into operation of this Part or was erected after that date but was exempted by paragraph (1); and

(*b*) in any case in which regulation FF3 applies, it shall apply as provided under sub-paragraphs (*a*) and (*b*) of regulation A7(1).

(3) In relation to an extension of an existing building or part of a building—

(*a*) regulation FF3 shall not apply if the extended building or part, treated as if it were being newly erected in its proposed form, would be exempted by paragraph (1); and

(*b*) in any case in which regulation FF3 applies, it shall apply as provided under sub-paragraph (*a*) of regulation A7(1) irrespective of when that building or part was erected.

*Interpretation of Part FF*

FF2.—(1) In this Part and in Schedule 9A—

"partially heated space" means any space which—

(*a*) is enclosed by a structure which is exposed in part to the external air; and

(*b*) if regarded as a building, or part of a building, falling wholly within one purpose group, would not be subject to the requirements of this Part by virtue of sub-paragraph (*c*) or (*d*) of regulation FF1(1);

"rooflight opening" means any structural opening in a roof which is provided for a hinged, sliding or fixed light irrespective of its size or function;

"U value" means the thermal transmittance co-efficient, that is to say, the rate of heat transfer calculated in watts through one square metre of a structure when the combined radiant and air temperature at each side of the structure differ by 1°C and the sum of the internal and external surface resistances is taken to be 0.18$m^2$°C/W for wall surfaces, 0.24$m^2$°C/W for floor surfaces and 0.15$m^2$°C/W for roof surfaces;

and for the purposes of this definition—

"surface resistance" means the reciprocal of the rate of heat transfer in watts between each square metre of surface and the surrounding air when there is a difference of temperature of 1°C between the surface and the surrounding air;

"ventilated space" means any space which—

(*a*) is enclosed by a structure which is exposed in part to the external air; and

(*b*) is ventilated by means of permanent vents having an aggregate area exceeding 30% of the wall boundary area; and for the purposes of this definition—

"permanent vent" means an opening or duct which communicates with the external air and is designed to allow the passage of air at all times; and

"wall boundary area" means the total superficial area of all walling, including any opening, bounding a ventilated space;

"window opening" means any structural opening which is provided for a window irrespective of its size and function or for a hinged or sliding door or panel having a glazed area of $2m^2$ or more.

(2) In this Part and in Schedule 9A—

(*a*) any reference to a building, or part of a building, of a specified purpose group shall be construed as a reference to a building or part of that purpose group determined in accordance with the provisions of regulation E2;

(*b*) any reference to a building, or part of a building, of purpose group VIII which is intended to be used for storage shall be construed as a reference to any such building or part which is a place for storage, deposit or parking of goods and materials (including vehicles); and

(*c*) any reference to a building, or part of a building, of purpose group VIII which is not intended to be used for storage shall be construed as a reference to any other premises not comprised in purpose groups I to VII.

(3) For the purposes of regulation FF4—

(*a*) any part of a roof which has a pitch of 70° or more shall be treated as an external wall;

(*b*) any floor which is so situated that its upper surface is exposed to the external air shall be treated as a roof in relation to that part of the building beneath it;

(*c*) any lintel, jamb or sill associated with an opening in a wall may be regarded (at the option of the person intending to erect the building) either as part of that wall or as part of that opening;

(*d*) the U value of any window opening or rooflight opening shall be assumed to be 5.7 $W/m^2°C$ if it is single-glazed, 2.8 $W/m^2°C$ if it is double-glazed or 2.0 $W/m^2°C$ if it is triple-glazed, irrespective of whether the light transmitting material is glass or not; and

(*e*) any other opening in a wall or roof shall be assumed to have a U value equivalent to the average U value of the element in which it is situated.

*Conservation of Fuel and Power*

FF3. A building, or part of a building, to which this Part applies shall be so designed and constructed that the enclosing structure provides adequate resistance to the passage of heat the loss of which from the building or part would entail the consumption of fuel or power to enable temperature conditions normal for the proposed use of the building or part to be maintained.

*Deemed-to-Satisfy Provisions for the Conservation of Fuel and Power*

FF4. The requirements of regulation FF3 shall be deemed to be satisfied if—

(*a*) (i) the total area of window openings and the total area of rooflight openings situated in walls and roofs for which a maximum U value is specified in sub-paragraph (*b*)(i) do not exceed the appropriate percentage values specified in Table 1: or

(ii) the calculated total rate of heat loss (W/°C) through all such openings does not exceed that which would have obtained had each of those openings been single-glazed and the total areas thereof complied with sub-paragraph (*a*)(i); and

(*b*) (i) the U value of every part of a wall, floor or roof which is described in Table 2 (excluding any openings therein) does not exceed the appropriate value specified in that Table; or

(ii) the calculated total rate of heat loss (W/°C) through all such walls, floors and roofs does not exceed that which would have obtained had the U value of every part of each of those elements complied with sub-paragraph (*b*)(i); or

(iii) each such wall, floor and roof is constructed in accordance with a specification contained in Part II or III of Schedule 9A whichever is appropriate.

TABLE 1 TO REGULATION FF4

(Maximum Area of Window Openings and Rooflight Openings)

Type of Openings

Maximum area of window openings and rooflight openings having regard to the purpose group of the building or part of a building (expressed as a percentage of the total areas of the walls and roofs respectively for which a maximum U value is required by paragraph (*b*)(i)) where—

(*a*) the area of a window opening or rooflight opening is taken to be the area of the inner surface of the element fitted in that opening measured in the general plane or planes of that element;

(*b*) the area of a wall is taken to be the area of the inner face of that wall (including window openings and all openings for doors, roller shutters or other purposes) measured between finished floor and ceiling levels and between finished surfaces of flanking walls or partitions;

(*c*) the area of a roof is taken to be the area of the inner surface of that roof (including rooflight openings and all openings for other purposes) measured between flanking walls or partitions; and

(*d*) in the case of a building, or part of a building, of purpose group V—

(i) the area of any window opening situated in a wall enclosing the ground storey is not included in the total area of window openings; and

(ii) the area of walling enclosing the ground storey is not included in the total area of the walls.

| (1) | II or III (2) | IV, V or VII (3) | VI or VIII (4) |
|---|---|---|---|
| Window openings | 25 | 35 | 15 |
| Rooflight openings | 20 | 20 | 20 |

TABLE 2 TO REGULATION FF4

(Maximum U Value of Walls, Floors and Roofs)

| Element of building | Maximum U value of every part of element (in $W/m^2°C$) having regard to the purpose group of the building or part of a building | |
|---|---|---|
| | II, III, IV, V or VII, or (if not for storage) VIII | VI or (if for storage) VIII |
| (1) | (2) | (3) |
| 1. External wall (other than any such wall enclosing a ventilated space or a partially heated space) | 0.6 | 0.7 |
| 2. Internal wall exposed to a ventilated space | | |
| 3. Floor having its under surface exposed to the external air or to a ventilated space | | |
| 4. Roof (other than a roof over a ventilated space or partially heated space) including:— (*a*) any ceiling to the roof; or (*b*) any roof space and any ceiling below that space | | |

SCHEDULE 2 Regulation 4(10)

**Schedule to be inserted after Schedule 9 to the principal regulations**

SCHEDULE 9A Regulation FF4(*b*)(iii)

Deemed-to-satisfy provisions

Conservation of fuel and power in buildings other than dwellings
Part I: Interpretation of Schedule 9A

1. In this Schedule, "thermal conductivity"—
   (*a*) means the thermal transmission in unit time through unit area of a slab of a uniform homogeneous material of unit thickness when unit difference of temperature is established between its surfaces; and
   (*b*) in the case of any material containing cement, refers exclusively to the thermal conductivity of that material having a moisture content of 3% by volume.
2. In column (1) of each table in Parts II and III, any reference to an insulating material shall be construed as a reference to any one of the materials described in the Table to this rule.

Table to Rule 2: Insulating materials

| Type | Description |
|---|---|
| (1) | (2) |
| A | Wood wool slab (density not exceeding 500 kg/m²) |
| B | Fibre building board: insulating board or bitumen impregnated insulating board |
| | Perlite granules |
| C | Cellular glass |
| D | Mineral fibre (glass or rock) quilt or loose fill |
| | Urea formaldehyde foam cavity fill |
| E | Mineral fibre (glass or rock) slab or rigid mat |
| | Expanded polystyrene insulating board |
| F | Polyurethane or phenol formaldehyde core to laminated board |

3. If, in addition to the component parts described in column (1) of any table in Part II or III, the construction of a wall, floor or roof includes any one of the surface finishes described in column (1) of the Table, the minimum thickness of insulating material specified in column (5) of the relevant table in Part II or III (or, if there are no entries in that column, the minimum thickness specified in column (2) of that table) shall be taken to be reduced by the percentage in column (2) of the Table.

Table to Rule 3: Reduction of minimum thickness

| Description of internal surface finish (1) | Percentage reduction (2) |
|---|---|
| 1. Dense plaster | 2 |
| 2. Lightweight plaster | 6 |
| 3. Plasterboard on dabs, strips or battens | 20 |
| 4. Insulating plasterboard on battens | 30 |

4. If the density or thermal conductivity of a material is required to conform to a limit specified in column (3) or (4) in any table in Part II or III and the value is intermediate between two adjacent values specified in the relevant column, the appropriate minimum thickness of insulating material for the purposes of column (5) of that table (or, if there are no entries in that column, the minimum thickness specified in column (2) of that table) may, at the option of the person intending to erect the building, be determined by linear interpolation.

5. If in addition to the component parts detailed in column (1) of Tables 3 and 6 in Parts II and III respectively, a roof includes a layer of fibre insulating board at least 12 mm thick interposed between expanded polystyrene insulating board and the roof covering or screed, the relevant minimum thickness of expanded polystyrene insulating board given in column (5), Type E of Tables 3 and 6 may be reduced by 8 mm.

Part II: Specifications relating to buildings, or parts, of purpose group II, III, IV, V or VII or (if not for storage) VIII

Table 1: Walls

| (1) Description of wall | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 1. Any wall not precisely specified in this Table— | | | | | | | | | |
| (*a*) of solid or composite construction containing insulating material; or | | | | 126 | 89 | 74 | 59 | 52 | 37 |
| (*b*) of composite construction containing insulating material and enclosing an airspace not less than 20 mm wide | | | | 111 | 79 | 65 | 52 | 46 | 33 |
| 2. A cavity wall comprising an outer leaf of brickwork and an inner leaf either of brickwork or of solid concrete blocks or slabs, each leaf conforming to the limit in column (2); and | | | | | | | | | |
| (*a*) the cavity is completely filled by insulating material; and | | | | | | | | | |
| (i) the inner leaf is of brickwork; or | 100 | | | 99 | 70 | 58 | 47 | 41 | 29 |
| (ii) the inner leaf is of concrete blocks or slabs conforming to the limit in column (3) or (4); or | 100 | 2300 | 1.63 | 111 | 79 | 65 | 52 | 46 | 33 |
| | 100 | 1700 | 0.76 | 105 | 74 | 62 | 49 | 43 | 31 |
| | 100 | 1400 | 0.51 | 99 | 70 | 58 | 47 | 41 | 29 |
| | 100 | 1100 | 0.34 | 91 | 64 | 54 | 43 | 38 | 27 |
| | 100 | 750 | 0.22 | 78 | 55 | 46 | 36 | 32 | 23 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| (*b*) the cavity is partly filled by insulating material attached to either of its boundary faces so as to preserve a residual air space at least 20 mm wide or the insulating material is attached to the room face of the inner leaf; and | | | | | | | | | |
| (i) the inner leaf is of brickwork; or | 100 | | | 84 | 59 | 50 | 40 | 35 | 25 |
| (ii) the inner leaf is of concrete blocks or slabs conforming to the limit in column (3) or (4); or | 100 | 2300 | 1.63 | 96 | 68 | 56 | 45 | 39 | 28 |
| | 100 | 1700 | 0.76 | 90 | 63 | 53 | 42 | 37 | 26 |
| | 100 | 1400 | 0.51 | 84 | 59 | 50 | 40 | 35 | 25 |
| | 100 | 1100 | 0.34 | 76 | 54 | 45 | 36 | 31 | 22 |
| | 100 | 750 | 0.22 | 62 | 44 | 37 | 29 | 27 | 18 |
| (*c*) the insulating material is separated from the inner face of the inner leaf by an airspace not less than 20 mm wide; and | | | | | | | | | |
| (i) the inner leaf is of brickwork; or | 100 | | | 69 | 49 | 41 | 32 | 28 | 20 |
| (ii) the inner leaf is of concrete blocks or slabs conforming to the limit in column (3) or (4) | 100 | 2300 | 1.63 | 80 | 57 | 47 | 40 | 33 | 24 |
| | 100 | 1700 | 0.76 | 74 | 53 | 44 | 35 | 31 | 22 |
| | 100 | 1400 | 0.51 | 69 | 49 | 41 | 32 | 28 | 20 |
| | 100 | 1100 | 0.34 | 61 | 43 | 36 | 29 | 25 | 18 |
| | 100 | 750 | 0.22 | 47 | 33 | 28 | 22 | 19 | 14 |
| 3. A solid wall, rendered externally, consisting of solid cast concrete or solid concrete blocks or slabs and conforming to the limit in column (2) and to the limit in column (3) or (4); and | | | | | | | | | |
| (*a*) insulating material is attached directly to the inner face; or | 200 | 2300 | 1.63 | 117 | 83 | 69 | 55 | 48 | 34 |
| | 200 | 1700 | 0.76 | 106 | 75 | 62 | 50 | 43 | 31 |
| | 200 | 1400 | 0.51 | 97 | 68 | 57 | 45 | 40 | 28 |
| | 200 | 1100 | 0.34 | 82 | 58 | 48 | 38 | 33 | 24 |
| | 200 | 750 | 0.22 | 56 | 39 | 33 | 26 | 23 | 16 |

Part II: Specifications relating to buildings, or parts, of purpose group II, III, IV, V or VII or (if not for storage) VIII—*continued*

Table 1: Walls—*continued*

| (1) Description of wall | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| (*b*) insulating material is separated from the inner face by an airspace not less than 20 mm wide | 200 | 2300 | 1.63 | 102 | 72 | 60 | 48 | 42 | 30 |
| | 200 | 1700 | 0.76 | 91 | 64 | 53 | 43 | 37 | 27 |
| | 200 | 1400 | 0.51 | 81 | 57 | 48 | 38 | 33 | 24 |
| | 200 | 1100 | 0.34 | 66 | 47 | 39 | 31 | 27 | 19 |
| | 200 | 750 | 0.22 | 40 | 28 | 24 | 19 | 17 | 12 |
| 4. A wall, rendered externally, of solid cast concrete or solid concrete blocks or slabs conforming to the limit in column (3) or (4)— | | | | | | | | | |
| (*a*) in a single leaf conforming to the limit in column (2); or | 848 | 1400 | 0.51 | | | | | | |
| | 565 | 1100 | 0.34 | | | | | | |
| | 357 | 750 | 0.22 | | | | | | |
| (*b*) in two leaves of similar thickness and composition, separated by a cavity not less than 20 mm wide, the two leaves together conforming to the limit in column (2) | 706 | 1400 | 0.51 | | | | | | |
| | 470 | 1100 | 0.34 | | | | | | |
| | 301 | 750 | 0.22 | | | | | | |
| 5. A composite wall containing a cavity not less than 20 mm wide and comprising— | | | | | | | | | |
| (*a*) an external cladding of metal, glass or plastics sheet; and | | | | | | | | | |
| (i) insulating material and an internal lining of gypsum plasterboard secured to studding; or | | | | — | — | 69 | 55 | 48 | 34 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (ii) an inner leaf of solid cast concrete or solid concrete blocks or slabs conforming to the limit in column (2) and to the limit in column (3) or (4); or | 667<br>444<br>288 | 1400<br>1100<br>750 | 0.51<br>0.34<br>0.22 | | | | | | | |
| (*b*) an external veneer of single-leaf brickwork or of tiles or weatherboarding secured on battens with a background of breather paper and counter-battens sufficient to preserve the required cavity; and | | | | | | | | | | |
| (i) insulating material and an internal lining of gypsum plasterboard secured to studding; or | | | | — | — | 63 | 50 | 44 | 31 | |
| (ii) an inner leaf of solid cast concrete or solid concrete blocks or slabs conforming to the limit in column (2) and to the limit in column (3) or (4) | 621<br>414<br>268 | 1400<br>1100<br>750 | 0.51<br>0.34<br>0.22 | | | | | | | |

Part II: Specifications relating to buildings, or parts, of purpose group II, III, IV, V or VII or (if not for storage) VIII—*continued*

Table 2: Floors exposed to the external air

| (1) Description of floor | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 1. Floor of slabs or hollow beams of dense concrete conforming to the limit in column (2) with— | | | | | | | | | |
| (*a*) insulating material in direct contact with the upper or lower surface of the floor; or | 100 | | | — | — | 68 | 54 | 47 | 34 |
| (*b*) insulating material separated by an airspace not less than 20 mm wide from the upper or lower surface of the floor | 100 | | | — | — | 57 | 46 | 40 | 29 |
| 2. Floor of slabs or beams of autoclaved aerated concrete conforming to the limit in column (2) and to the limit in column (3) or (4) with— | | | | | | | | | |
| (*a*) no additional insulation; or | 250 | 600 | 0.18 | | | | | | |
| (*b*) insulating material in direct contact with the upper or lower surface of the floor; or | 200 | 600 | 0.18 | 27 | 19 | 16 | 13 | 11 | 8 |
| | 150 | 600 | 0.18 | 50 | 36 | 30 | 24 | 21 | 15 |
| | 100 | 600 | 0.18 | 74 | 52 | 44 | 35 | 31 | 22 |
| (*c*) insulating material separated by an airspace not less than 20 mm wide from the upper or lower surface of the floor | 200 | 600 | 0.18 | 9 | 6 | 5 | 4 | 4 | 3 |
| | 150 | 600 | 0.18 | 32 | 23 | 19 | 15 | 13 | 10 |
| | 100 | 600 | 0.18 | 56 | 40 | 33 | 26 | 23 | 16 |

Part II: Specifications relating to buildings, or parts, of purpose group II, III, IV, V or VII or (if not for storage) VIII—*continued*

Table 3: Roofs

| (1) Description of roof | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 1. Any roof not precisely specified in this Table which contains insulating material, including sandwich construction of mineral fibre (glass or rock) with requisite spacers between asbestos-cement corrugated sheets | | | | — | — | — | 60 | 50 | 35 |
| 2. Pitched roof of slates or tiles on sarking felt or sarking paper (or a pitched or flat roof of any waterproof material on boarding not less than 16 mm thick) having a ventilated space between the underside of the roof and a separate ceiling to the room below, with— | | | | | | | | | |
| (*a*) insulating material in direct contact with that ceiling; or | | | | — | — | — | 46 | 38 | 28 |
| (*b*) insulating material separated from either surface of the ceiling by an airspace not less than 20 mm wide | | | | — | — | — | — | 34 | 24 |
| 3. Pitched or flat roof with boarding conforming to the limits in columns (2) and (4) laid on asbestos-cement or metal decking with— | | | | | | | | | |
| (*a*) insulating material in contact with the roof covering or the soffit of the assembly; or | 12.5 | | 0.05 | — | — | — | — | 32 | 23 |

Part II: Specifications relating to buildings, or parts, of purpose group II, III, IV, V or VII or (if not for storage) VIII—*continued*

Table 3: Roofs—*continued*

| (1) Description of roof | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 3. *continued* | | | | | | | | | |
| (*b*) insulating material separated from the soffit by an airspace not less than 20 mm wide | 12.5 | | 0.05 | — | — | — | — | 25 | 18 |
| 4. Pitched or flat weatherproofed decking of wood wool slabs of density not exceeding 500 kg/m³ and conforming to the relevant limit in column (2) with— | | | | | | | | | |
| (*a*) insulating material in contact with the roof covering or the top or soffit of the decking; or | 50 | | | — | — | — | — | 31 | 20 |
| | 76 | | | — | — | — | — | 25 | 16 |
| (*b*) insulating material separated from either surface of the decking by an airspace not less than 20 mm wide | 50 | | | — | — | — | — | 21 | 13 |
| | 76 | | | — | — | — | — | 15 | 10 |
| 5. Pitched or flat roof of dense concrete hollow or solid beams or slabs either unscreeded or screeded to an average thickness of not less than 40 mm with material conforming to the limit in column (3) or (4) with— | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| (*a*) insulating material in contact with the roof covering or the upper face or soffit of the concrete members; or | Unscreeded | | | — | — | 70 | — | 49 | 35 |
| | Screeded | 1400 | 0.51 | — | — | 66 | — | 46 | 33 |
| | Screeded | 1100 | 0.34 | — | — | 64 | — | 45 | 32 |
| | Screeded | 750 | 0.22 | — | — | 60 | — | 43 | 30 |
| | Screeded | 400 | 0.15 | — | — | 57 | — | 40 | 28 |
| (*b*) insulating material separated from the soffit of the concrete members by an airspace not less than 20 mm wide | Unscreeded | | | — | — | — | — | 44 | 31 |
| | Screeded | 1400 | 0.51 | — | — | — | — | 41 | 29 |
| | Screeded | 1100 | 0.34 | — | — | — | — | 39 | 28 |
| | Screeded | 750 | 0.22 | — | — | — | — | 37 | 27 |
| | Screeded | 400 | 0.15 | — | — | — | — | 34 | 25 |
| 6. Roof of slabs or beams of autoclaved aerated concrete conforming to the relevant limit in column (2) and to the limit in column (3) or (4) with insulating material in contact with concrete members | 250 | 600 | 0.18 | 11 | 8 | 6 | — | 4 | 3 |
| | 200 | 600 | 0.18 | 35 | 24 | 20 | — | 14 | 10 |
| | 150 | 600 | 0.18 | 58 | 41 | 34 | — | 24 | 17 |
| | 100 | 600 | 0.18 | — | — | 48 | — | 34 | 24 |

Part III: Specifications relating to buildings, or parts, of purpose group VI or (if for storage) VIII

Table 4: Walls

| (1) Description of wall | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 1. Any wall not precisely specified in this Table— | | | | | | | | | |
| (*a*) of solid or composite construction containing insulating material; or | | | | 106 | 75 | 62 | 50 | 44 | 31 |
| (*b*) of composite construction containing insulating material and enclosing an airspace not less than 20 mm wide | | | | 91 | 64 | 53 | 43 | 37 | 27 |
| 2. A cavity wall comprising an outer leaf of brickwork and an inner leaf either of brickwork or of solid concrete blocks or slabs each leaf conforming to the limit in column (2); and | | | | | | | | | |
| (*a*) the cavity is completely filled by insulating material; and | | | | | | | | | |
| (i) the inner leaf is of brickwork; or | 100 | | | 80 | 56 | 47 | 37 | 33 | 23 |
| (ii) the inner leaf is of concrete blocks or slabs conforming to the limit in column (3) or (4); or | 100 | 2300 | 1.63 | 91 | 64 | 53 | 43 | 37 | 27 |
| | 100 | 1700 | 0.76 | 85 | 60 | 50 | 40 | 35 | 25 |
| | 100 | 1400 | 0.51 | 80 | 56 | 47 | 37 | 33 | 23 |
| | 100 | 1100 | 0.34 | 71 | 50 | 42 | 33 | 29 | 21 |
| | 100 | 750 | 0.22 | 57 | 40 | 34 | 27 | 24 | 17 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| (*b*) the cavity is partly filled by insulating material attached to either face of the inner leaf; and | | | | | | | | | |
| (i) the inner leaf is of brickwork; or | 100 | | | 64 | 45 | 38 | 30 | 26 | 19 |
| (ii) the inner leaf is of concrete blocks or slabs conforming to the limit in column (3) or (4); or | 100 | 2300 | 1.63 | 75 | 53 | 44 | 35 | 31 | 22 |
| | 100 | 1700 | 0.76 | 69 | 49 | 41 | 33 | 29 | 20 |
| | 100 | 1400 | 0.51 | 64 | 45 | 38 | 30 | 26 | 19 |
| | 100 | 1100 | 0.34 | 56 | 39 | 33 | 26 | 23 | 16 |
| | 100 | 750 | 0.22 | 42 | 30 | 25 | 20 | 17 | 12 |
| (*c*) the insulating material is separated from the inner face of the inner leaf by an airspace not less than 20 mm wide; and | | | | | | | | | |
| (i) the inner leaf is of brickwork; or | 100 | | | 49 | 34 | 29 | 23 | 20 | 14 |
| (ii) the inner leaf is of concrete blocks or slabs conforming to the limit in column (3) or (4) | 100 | 2300 | 1.63 | 60 | 42 | 35 | 28 | 25 | 18 |
| | 100 | 1700 | 0.76 | 54 | 38 | 32 | 25 | 22 | 16 |
| | 100 | 1400 | 0.51 | 49 | 34 | 29 | 23 | 20 | 14 |
| | 100 | 1100 | 0.34 | 40 | 28 | 24 | 19 | 17 | 12 |
| | 100 | 750 | 0.22 | 27 | 19 | 16 | 13 | 11 | 8 |
| 3. A solid wall, rendered externally, consisting of solid cast concrete or solid concrete blocks or slabs and conforming to the limit in column (2) and to the limit in column (3) or (4); and | | | | | | | | | |
| (*a*) insulating material is attached directly to the inner face; or | 200 | 2300 | 1.63 | 97 | 68 | 56 | 45 | 40 | 28 |
| | 200 | 1700 | 0.76 | 85 | 61 | 51 | 40 | 35 | 25 |
| | 200 | 1400 | 0.51 | 76 | 54 | 45 | 36 | 31 | 22 |
| | 200 | 1100 | 0.34 | 61 | 43 | 36 | 29 | 25 | 18 |
| | 200 | 750 | 0.22 | 35 | 25 | 21 | 17 | 14 | 10 |
| (*b*) insulating material is separated from the inner face by an airspace not less than 20 mm wide | 200 | 2300 | 1.63 | 81 | 57 | 48 | 38 | 33 | 24 |
| | 200 | 1700 | 0.76 | 71 | 50 | 42 | 33 | 29 | 21 |
| | 200 | 1400 | 0.51 | 61 | 43 | 36 | 29 | 25 | 18 |
| | 200 | 1100 | 0.34 | 46 | 33 | 27 | 22 | 19 | 14 |
| | 200 | 750 | 0.22 | 20 | 14 | 12 | 9 | 8 | 6 |

Part III: Specifications relating to buildings, or parts, of purpose group VI or (if for storage) VIII—*continued*

Table 4: Walls—*continued*

| (1) Description of wall | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 4. A wall, rendered externally, of solid cast concrete or solid concrete blocks or slabs conforming to the limit in column (3) or (4)— | | | | | | | | | |
| (*a*) in a single leaf conforming to the limit in column (2); or | 712<br>475<br>300 | 1400<br>1100<br>750 | 0.51<br>0.34<br>0.22 | | | | | | |
| (*b*) in two leaves of similar thickness and composition separated by a cavity not less than 20 mm wide, the two leaves together conforming to the limit in column (2) | 577<br>385<br>250 | 1400<br>1100<br>750 | 0.51<br>0.34<br>0.22 | | | | | | |
| 5. A composite wall containing a cavity not less than 20 mm wide and comprising— | | | | | | | | | |
| (*a*) an external cladding of metal, glass or plastics sheet; and | | | | | | | | | |
| (i) insulating material and an internal lining of gypsum plasterboard secured to studding; or | | | | — | — | 54 | 43 | 38 | 27 |
| (ii) an inner leaf of solid cast concrete or solid concrete blocks or slabs conforming to the limit in column (2) and to the limit in column (3) or (4); or | 546<br>364<br>235 | 1400<br>1100<br>750 | 0.51<br>0.34<br>0.22 | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (*b*) an external veneer of single-leaf brickwork or of tiles or weatherboarding secured on battens with a background of breather paper and counter-battens sufficient to preserve the required cavity; and | | | | | | | | | | |
| (i) insulating material and an internal lining of gypsum plasterboard secured to studding; or | | | | — | — | 48 | 38 | 34 | 24 |
| (ii) an inner leaf of solid cast concrete or solid concrete blocks or slabs conforming to the limit in column (2) and to the limit in column (3) or (4) | 500<br>333<br>216 | 1400<br>1100<br>750 | 0.51<br>0.34<br>0.22 | | | | | | |

Part III: Specifications relating to buildings, or parts, of purpose group VI or (if for storage) VIII—*continued*

Table 5: Floors exposed to the external air

| (1) Description of floor | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 1. Floor of slabs or hollow beams of dense concrete conforming to the limit in column (2) with— | | | | | | | | | |
| (*a*) insulating material in direct contact with the upper or lower surface of the floor; or | 100 | | | — | — | 56 | 45 | 39 | 28 |
| (*b*) insulating material separated by an airspace not less than 20 mm wide from the upper or lower surface of the floor | 100 | | | — | — | 46 | 36 | 32 | 23 |
| 2. Floor of slabs or beams of autoclaved aerated concrete conforming to the limit in column (2) and to the limit in columns (3) or (4) with— | | | | | | | | | |
| (*a*) no additional insulation; or | 250 | 600 | 0.18 | | | | | | |
| (*b*) insulating material in direct contact with the upper or lower surface of the floor; or | 200 | 600 | 0.18 | 7 | 5 | 4 | 3 | 3 | 2 |
| | 150 | 600 | 0.18 | 30 | 21 | 18 | 14 | 12 | 9 |
| | 100 | 600 | 0.18 | 54 | 38 | 32 | 25 | 22 | 16 |
| (*c*) insulating material separated by an airspace not less than 20 mm wide from the upper or lower surface of the floor | 150 | 600 | 0.18 | 12 | 9 | 7 | 6 | 5 | 4 |
| | 100 | 600 | 0.18 | 36 | 25 | 21 | 17 | 15 | 11 |

Part III: Specifications relating to buildings, or parts, of purpose group VI or (if for storage) VIII—*continued*

Table 6: Roofs

| (1) Description of roof | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 1. Any roof not precisely specified in this Table which contains insulating material, including sandwich construction of mineral fibre (glass or rock) with requisite spacers between asbestos-cement corrugated sheets | | | | — | — | — | 50 | 42 | 29 |
| 2. Pitched roof of slates or tiles on sarking felt or sarking paper (or a pitched or flat roof of any waterproof material on boarding not less than 16 mm thick) having a ventilated space between the underside of the roof and a separate ceiling to the room below, with— | | | | | | | | | |
| (*a*) insulating material in direct contact with that ceiling; or | | | | — | — | — | 36 | 30 | 22 |
| (*b*) insulating material separated from either surface of the ceiling by an airspace not less than 20 mm wide | | | | — | — | — | — | 26 | 19 |

Part III: Specifications relating to buildings, or parts, of purpose group VI or (if for storage) VIII—*continued*

Table 6: Roofs—*continued*

| (1) Description of roof | (2) Minimum thickness (in mm) | (3) Maximum density (in kg/m³) | (4) Maximum thermal conductivity (in W/m°C) | (5) Minimum thickness (in mm) of insulating material referred to in column (1) according to type | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| 3. Pitched or flat-roof with boarding conforming to the limits in columns (2) and (4) laid on asbestos-cement or metal decking with— | | | | | | | | | |
| (*a*) insulating material in contact with the roof covering or the soffit of the assembly; or | 12.5 | | 0.05 | — | — | — | — | 24 | 17 |
| (*b*) insulating material separated from the soffit by an airspace not less than 20 mm wide | 12.5 | | 0.05 | — | — | — | — | 17 | 9 |
| 4. Pitched or flat weatherproofed decking of wood wool slabs of density not exceeding 500 kg/m³ and conforming to the relevant limit in column (2) with— | | | | | | | | | |
| (*a*) insulating material in contact with the roof covering or the top or soffit of the decking; or | 50 | | | — | — | — | — | 22 | 15 |
| | 76 | | | — | — | — | — | 16 | 10 |
| (*b*) insulating material separated from either surface of the decking by an airspace not less than 20 mm wide | 50 | | | — | — | — | — | 13 | 8 |
| | 76 | | | — | — | — | — | 6 | 4 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5. Pitched or flat roof of dense concrete hollow or solid beams or slabs either unscreeded or screeded to an average thickness of not less than 40 mm with material conforming to the limit in column (3) or (4) with— | | | | | | | | | |
| (*a*) insulating material in contact with the roof covering or the upper face or soffit of the concrete members; or | Unscreeded | | | — | — | 58 | — | 41 | 29 |
| | Screeded | 1400 | 0.51 | — | — | 54 | — | 38 | 27 |
| | Screeded | 1100 | 0.34 | — | — | 52 | — | 37 | 26 |
| | Screeded | 750 | 0.22 | — | — | 49 | — | 35 | 25 |
| | Screeded | 400 | 0.15 | — | — | 45 | — | 31 | 22 |
| (*b*) insulating material separated from the soffit of the concrete members by an airspace not less than 20 mm wide | Unscreeded | | | — | — | — | — | 35 | 25 |
| | Screeded | 1400 | 0.51 | — | — | — | — | 33 | 23 |
| | Screeded | 1100 | 0.34 | — | — | — | — | 31 | 22 |
| | Screeded | 750 | 0.22 | 71 | — | — | — | 29 | 21 |
| | Screeded | 400 | 0.15 | 63 | — | — | — | 26 | 19 |
| 6. Roof of slabs or beams of autoclaved aerated concrete conforming to the relevant limit in column (2) and to the limit in column (3) or (4) with— | | | | | | | | | |
| (*a*) no additional insulation; or | 250 | 600 | 0.18 | — | — | — | — | — | — |
| (*b*) insulating material in contact with the concrete members | 200 | 600 | 0.18 | 14 | 10 | 8 | — | 6 | 4 |
| | 150 | 600 | 0.18 | 38 | 27 | 22 | — | 16 | 11 |
| | 100 | 600 | 0.18 | 62 | 43 | 36 | — | 25 | 18 |

## EXPLANATORY NOTE

*(This note is not part of the Regulations, but is intended to indicate their general purport.)*

These regulations further amend the Building Regulations (Northern Ireland) 1977. They come into operation on 1st July 1980 but do not apply to work which has been completed, or for which plans have been deposited with a district council, before that date.

These regulations introduce provisions for conserving fuel and power. The provisions contained in the new Part FF and Schedule 9A (introduced by regulations 4(5) and (10) respectively) apply, subject to certain exceptions, to all buildings other than dwellings the thermal insulation of which is already controlled by the existing Part F.

The main regulations in new Part FF comprise:—

(*a*) a mandatory requirement, expressed in functional terms, requiring a building, or part of a building, to be so designed and constructed that the enclosing structure provides adequate resistance to the passage of heat (regulation FF3); and

(*b*) provisions specifying alternative, but not exhaustive, measures which if adopted will be deemed to satisfy the mandatory requirement (regulation FF4).